Please amend claim 23 as follows:

23. (amended) A nuclear reactor having a reactor vessel and a plurality of fuel assemblies loaded in the rector core in said reactor vessel, wherein each of said fuel assemblies comprises:

an upper tie plate;

a lower tie plate;

a plurality of fuel rods of which the upper ends are held by said upper tie plate, of which the lower ends are held by a fuel rod holding portion of said lower tie plate, and which are each filled with a plurality of fuel pellets;

[water rods] <u>at least one water rod</u> arranged among said fuel rods <u>and held by said fuel rod holding portion</u>;

<u>said fuel rod holding portion being</u> a resistance member provided at the lower end of said fuel assembly;

means for controlling the amounts of voids accumulated in said [water rods] <u>at least one water rod</u>;

[a coolant ascending path in which said water rods have coolant inlet ports that are open in a region lower than said resistance member; and

a coolant descending path which is communicated with said coolant ascending path, and which has a coolant delivery port that is open in a region higher than said resistance member, in order to guide the coolant downwardly which is opposite to the direction in which the coolant flows in said coolant ascending path;]

<u>a first coolant passage formed within said at least one water rod;</u>

a second coolant passage formed outside of said at least one water rod and being provided among said fuel rods and between said at least one water rod and the fuel rods, between said upper tie plate and said fuel rod holding portion;

said fuel rod holding portion having a plurality of third coolant passages for introducing coolant into said second coolant passage from a region lower than said fuel rod holding portion, and each of said third coolant passages having a cross-sectional area smaller than a cross-sectional area of said second coolant passage at least in an area of said second coolant passage immediately above said fuel rod holding portion;

said at least one water rod having the first coolant passage including

means delimiting a coolant ascending path,

means delimiting a coolant descending path connected with said coolant ascending path at a top portion of said first coolant passage so that all of said coolant supplied into said coolant ascending path is introduced into the coolant descending path in a downward direction opposite to the direction of the flow of coolant in said coolant ascending path,

said coolant ascending path including a coolant inlet port, and

said coolant descending path including a coolant delivery port arranged in a position higher than said fuel rod holding portion and lower than said top portion of said first coolant passage, said coolant descending path being connected with

said second coolant passage, said coolant inlet port and coolant delivery port being positioned such that during flow of coolant under operation of a reactor core containing the fuel assembly, pressure differentials are developed between said coolant inlet port and said coolant delivery port, dependent on coolant flow rate; and

at least the cross-sectional area of each of said third coolant passages having a relation to that of said second coolant passage, to thereby provide the pressure differentials upon flow of coolant during operation of the reactor core, so as to enable a static coolant head within said coolant ascending path with respect to said coolant descending path at a first coolant flow rate under operation of the reactor core, and so as to enable a rise of a liquid surface of said coolant formed in said coolant ascending path until a state is obtained wherein the liquid surface is not formed in said at least one water rod by increase of a flow rate of said coolant being supplied into a respective fuel assembly, under operation of the reactor core with the fuel assembly disposed therein, whereby in said state, coolant flows through said coolant ascending and descending paths in substantially a single phase stream.

Please add the following new claims:

--30. A nuclear reactor according to claim 23, wherein a plurality of water rods are provided.

31. A nuclear reactor according to claim 23, wherein

said coolant descending path extends beyond the upper end of the fuel pellet-filled region of a respective fuel assembly.

32. A nuclear reactor according to claim 23, wherein the upper end of said coolant descending path is located at a position lower than the upper end of said fuel pellet-field region.

33. A nuclear reactor according to claim 32, wherein said coolant delivery port is positioned near the lower end of said fuel pellet-filled region.

34. A nuclear reactor according to claim 23, wherein said coolant descending path surround said coolant ascending path.

35. A nuclear reactor according to claim 23, wherein the means for controlling the amount of voids accumulated in said at least one water rod includes means for regulating a flow rate of coolant supplied to the core, said means being controlled so as to raise a liquid surface of said coolant formed between said coolant and vapor in said at least one water rod by initially increase of the flow rate of said coolant from a beginning of one fuel cycle to an end of the one fuel cycle and thereafter subsequently increasing the flow rate of said coolant supplied to the core in a state in which said at least one water rod is completely filled with said coolant at an end of the one fuel cycle.

36. A nuclear reactor according to claim 35, wherein the means for controlling the flow rate of said coolant controls the flow rate of said coolant initially in the range of 0% to less than 100% of the flow rate and thereafter subsequently increases the flow rate of said coolant so as to increase the flow rate above 100% of the flow rate.

37. A fuel assembly comprising:

an upper tie plate;

a lower tie plate;

a plurality of fuel rods having a lower end portion thereof held by a fuel rod holding portion of the lower tie plate;

at least one water rod arranged among the fuel rods and held by the fuel rod holding portion;

a first coolant passage formed within the at least one water rod;

a second coolant passage formed outside of the at least one water rod and being provided among the fuel rods and between the at least one water rod and the fuel rods, between the upper tie plate and the fuel rod holding portion;

the fuel rod holding portion having a plurality of third coolant passages for introducing coolant into the second coolant passage from a region lower than the fuel rod holding portion, and each of the third coolant passages having a cross-sectional area smaller than a cross-sectional area of the second coolant passage at least in an area of the second coolant passage immediately above the fuel rod holding

portion;

the at least one water rod having the first coolant passage including

means delimiting a coolant ascending path,

means delimiting a coolant descending path connected with the coolant ascending path at a top portion of the first coolant passage so that all of the coolant supplied into the coolant ascending path is introduced into the coolant descending path in a downward direction opposite to the direction of the flow of coolant in the coolant ascending path,

the coolant ascending path including a coolant inlet port, and

the coolant descending path including a coolant delivery port arranged in a position higher than the fuel rod holding portion and lower than the top portion of the first coolant passage, the coolant descending path being connected with the second coolant passage, the coolant inlet port and coolant delivery port being positioned such that during flow of coolant under operation of a reactor core containing the fuel assembly pressure differentials are developed between the coolant inlet port and the coolant delivery port, dependent on coolant flow rate; and

at least the cross-sectional area of each of the third coolant passages having a relation to that of the second coolant passage, to thereby provide the pressure differentials upon flow of coolant during operation of the reactor core, so as to enable a static coolant head within the coolant